Continuous Remote Monitoring on General Wards
Improving Patient Safety Through Early Recognition of Respiratory Events

It is well documented that early detection of respiratory events is key to optimal health outcomes. Avoiding adverse events decreases hospital patient mortality and morbidity rates, duration of hospital stays, and, ultimately, the cost of health care. Most importantly, avoiding adverse events saves lives. The CSRT, therefore, supports the best practice concept of early recognition of respiratory events as a vital part of increasing patient safety and improving health outcomes in hospitals’ general care units.

**Clinical impact of early intervention on adverse events**
Baker et al (1) defined adverse events as ‘an unintended injury or complication that results in disability at the time of discharge, death or prolonged hospital stay’. Approximately 7.5% of Canadians admitted to hospital in 2000 experienced one or more adverse event.(1) Adverse events lead to increased length of hospital stay, economic burden on the health care system and potential life-threatening events. In a study by Bellomo et al,(2) early intervention led to a 50% reduction in the number of cardiac-arrest related deaths.

There is reported evidence that opioid therapy used for post-operative pain control can lead to opioid-induced respiratory depression, a potentially catastrophic complication. Early clinical intervention can play a role in decreasing the risk of respiratory depression. Dr. Frank Overdyk(3) described the risk of decreased respiratory drive in general ward patients who receive opioids.

This complication may lead to respiratory arrest, which, if prolonged, may result in prolonged hypoxia and irreversible brain injury. Therefore, in order to ensure optimal patient care, the CSRT supports early intervention and continuous remote monitoring for the early detection of respiratory events on the general care floors. This is especially true in high-risk patients receiving patient-controlled analgesia (PCA) or oral narcotics, as well as obese patients who may be suffering from obstructive sleep apnea.

**Clinical evidence**
There is substantial clinical evidence that continuous monitoring allows for early intervention, or even the prevention of pulmonary complications. This can be done through the use of capnography or saturation monitoring. Taenzer et al,(4) reported fewer rescue events with the implementation of a saturation monitor that provides alerts through a wireless pager. Early intervention led to fewer ICU transfers and in turn, resulted in cost-savings to the hospital. Another study by Ochroch et al (5) examined the impact of pulse oximetry monitoring of post-operative patients. It was found that continuous pulse oximetry reduced respiratory readmissions to the intensive care unit in post cardio-thoracic surgery patients.

McCarter et al (6) examined the use of capnography for monitoring patients receiving post-operative analgesia for pain control. McCarter noted that capnography was the primary indicator of respiratory depression in patients receiving pain-controlled analgesia. This was again verified in a study by Cacho et al (7) which found that capnography not only detected respiratory depression, but it did so earlier than saturation monitoring.

In another study by Taenzer et al,(8) the authors addressed the importance of continuous monitoring. It has been found through chart reviews that many of these adverse events showed early warning signs of deterioration. Taenzer et al (6) suggest that those patients who may be deemed low risk should be monitored alongside those at high risk through the use of continuous monitoring.
**Best practice in respiratory care**
The CSRT and its members are committed to optimal respiratory care and believe that early detection and intervention contribute to the best possible health outcomes for the patients.

The CSRT endorses continuous monitoring of at-risk patients, and early notification of changes and alarms in real time. The CSRT believes that this will facilitate the identification of adverse respiratory events and strengthen the ability of respiratory therapists to provide optimal respiratory care. RTs can take a leadership role to protect patients with the implementation of best practice guidelines that include continuous remote monitoring on the general care floors.

The CSRT strongly supports the safety of all respiratory therapists and the patients and clients that they care for through the implementation of best practices. The CSRT encourages continuing education and training that will enhance the respiratory therapists’ ability to provide safe and ethical patient care.

**About the CSRT**
The CSRT is the national professional association representing approximately 3,200 respiratory therapists across Canada. The CSRT is also the credentialing agency for RTs who practice in non-regulated jurisdictions and administers the accreditation process for respiratory therapy education program.

*This Best Practice Statement was approved by the Board of Directors of the Canadian Society of Respiratory Therapists in March 2012*

**References**